MISSOURI DEPARTMENT OF TRANSPORTATION
CHILD & ADULT PASSENGER LIGHT DUTY CUTAWAY TYPE MULTIFUNCTION SCHOOL ACTIVITY BUS SPECIFICATIONS - 22 FOOT BODY

1. The intent of these general specifications is to describe a Multifunction School Activity Bus type vehicle that will be manufactured, structured and assembled by using best quality materials, components and workmanship in accordance with sound engineering principles and manufacturing practices to provide safe and reliable highway and city transportation for ambulatory and non-ambulatory adult and child passengers.

   Chassis types -School Bus Chassis only, 2013 or 2014 model year 138" or 158" WB, General Motors, Ford 11,500 GVW (60% domestic content, final assembly process in USA) or approved equal. If for any reason a 2013 model cannot be supplied a 2014 model must be furnished at quoted bid price. This only applies if the successful bidder received a purchase order in time to order a chassis and failed to do so. All vehicles must meet GVW requirements for anticipated load.

   These vehicles will have to be tested at the FTA's Altoona Bus Testing and Research Center and the testing report submitted to Missouri Department of Transportation with the bid.

   Bidder will supply a vehicle that will meet all Federal Motor Carrier Safety Regulations for passenger carrying vehicles.

   MoDOT reserves the right to conduct in-plant inspections.

   The Bus must comply with the Definition of Multifunction School Activity Bus in the Federal Motor Vehicle Safety Standards as listed in 49 CFR Part 571, which is the National Highway Traffic Safety Administration's Final Rule on this vehicle. **This primary purpose of this vehicle will be to transport children, and as such, it must meet all school bus FMVSS Standard numbers 105, 111, 217, 220, 221, 222, 225, and 301 as well as meeting or exceeding all other applicable Head Start regulations as detailed in 49 CFR Part 571.**

2. Body, Exterior, Construction - The materials used and the assembly method of the roof, side panels, and floor will be the manufacturer's standard construction, uniformly connected, lapped and sealed providing a weather and dust proof body. Drip rails shall be installed above all doors to prevent water leakage into bus. Drip rails will be 3/4" or more in width. Each vehicle will be thoroughly water tested before delivery. Vehicle must meet FMVSS 221 (School bus joint strength)

Color – Body Exterior: Base color to be white. No bus will be painted school bus yellow.

Advertisements- Decals and all other forms of dealer advertisements will not be allowed.

Bus will be warranted for rust-through for three years from delivery date to end user.

3. Body Interior Construction - The inner construction must provide equal protection to passengers regardless of where they are seated.

The inner frame, at the floor, front and rear ends shall be heavy steel construction that will provide solid support for inner crash shield and exterior panels. The frame shall be securely anchored to adequately spaced steel floor cross members.

The entire structure must provide maximum resistance to impact and collision and meet or exceed the rollover protection requirement of all federal regulations, (FMVSS 220).

Headliner - Shall be full length for driver and passenger area. This headliner shall have longitudinal and cross member supports where needed to prevent flexing and vibrations.

Color – Interior: The interior trim, upholstery, seat belts, visors, and etc., will be color keyed to exterior color.

Side and End Panels - To be complete on all doors, sidewalls and rear end.

The vehicle exterior and interior shall meet or exceed all State and National recommendations. It shall conform to all Federal Motor Vehicle Safety Standards and meet all static load test requirements. Materials used in construction of interior will meet FMVSS 302.

Floor and Floor Covering – Anti-skid flooring throughout. The entire floor except driver area shall be made level from end to end and side to side with marine grade plywood a minimum of 5/8" thick securely installed by glue, screws or a combination of methods that will assure a permanent fitted floor. (raised floor not required) The plywood floor shall be covered with a minimum of 2.2 mm thick, vinyl transit type floor covering. All seams will be heat welded when mating of similar surfaces occur. There will also be an aluminum polyethylene or galvanized steel, belly pan located under the floor to prevent moisture entrance. Fiberglass reinforced plywood is also acceptable. Exposed rear wheel wells are acceptable.

The entranceway and aisle will be non-skid type and under the seats it will be smooth with anti-skid properties. The driver area and wheelhouse covering may be either smooth or anti-skid type. All floor coverings shall meet ADA requirement 49 CFR 38.25. Flooring in securement area will meet ADA requirement 49 CFR 38.25(a) for slip resistance.

All exposed edges around the wall, doors and entranceways shall be trimmed with a molding securely attached. Any quality waterproof seal between the wall and floor junction is acceptable.

There will be a white standee line installed that meets all Federal Motor Carrier Safety regulations, 49 CFR 393.90.

Insulation - The interior dash firewall, lower panels, doors, floor, sidewalls, roof headliner and etc. shall be insulated.

Grabrail, Grabhandle, Guardrails and Stanchions - A floor to ceiling stanchion shall be installed near the aisle and immediately left of the entrance door. This stanchion shall be connected to the vehicle right side by a guardrail approximately 30" above the floor.

A floor to ceiling stanchion shall be installed in close proximity to the rear, right side of the driver's seat. This stanchion shall be connected to the vehicle's left hand sidewall by a guardrail approximately 30" above the floor. The stanchion and guardrail shall not impair the driver's seat adjustment.

A guardrail approximately 30" above the floor shall be installed to the vehicle left and right sides between the two passenger front seats.

A solid material padded barrier shall be provided with the entry door stanchion and guardrail. (Padded barriers that meet FMVSS 222 must be substituted for modesty panels on Floor Plan TT and UU)

Spacing of these guardrails and panels must provide adequate passenger knee room.

There will also be two overhead grab rails mounted securely above the passenger aisle way. These grab rails will meet ADA requirement 49 CFR 38.29.

A grab rail or handle a minimum of 18" in length shall be installed at the left of the right hand front entrance door within easy reach of boarding passengers to discourage the use of a door opening device for support when boarding.

There shall be a passenger grabrail mounted along the right side of the stepwell. This handle is to be approximately 18" in length and to be securely mounted to the vehicle to provide a secure handhold for boarding passengers.

All handrails and stanchions will meet ADA requirement 49 CFR 38.29. These handrails will be parallel to the entrance stepwell.

Padded barriers that meet FMVSS 222 will be installed in front of the two forward most two-passenger seats on Floor Plans TT and UU. All stanchions and modesty panels can be substituted with padded barriers that meet FMVSS 222.

Stanchions and guardrails shall be tubular metal and will be secured with at least four screws.

Seating - See Exhibits TT and UU. The arrangements shall provide seating as listed and as shown on the appropriate exhibit. The driver's seat shall be power adjustable (vertical and horizontal) high-back bucket type with full depth foam padded seat cushion and backrest covered with a high-quality level 3 cloth material. There will be an armrest on the right hand side and the back shall be adjustable.

The School Bus Activity type two-passenger seats shall be a minimum width of 32" and spaced on a maximum of 28" centers. No exceptions will be allowed in seat spacing or width.

All two-passenger seats shall be a minimum depth of 16"; the backrests shall be a minimum thickness of 2". All seat frames will be completely painted or powder coated.

All two-passenger seat cushions and backrests shall be covered with a minimum level 3 grade vinyl materials. Seat cushions and backrests shall have full depth foam padding. The seat cushion padding shall have a density (4" minimum) sufficient to support occupants without bottoming. High-back Activity School Bus style seats manufactured by the Freedman, C. E. White Seating Company, or American Seating, or approved equal. All seats will meet or exceed the requirements of FMVSS 210 and FMVSS 222 (compartmentalization). Please include testing certification with your bid.

All passenger seats will have fixed armrests on the aisle sides.

The walk-through aisle between right and left hand seats shall be a minimum of 14".

The driver and all passenger seats shall have best quality seat belts and under seat retractors properly located and easily accessible. The driver's seat belts shall have minimum usable length of 60" measured from the seat cushion to the buckle. The passenger seat belts will have to be designed to encircle the largest of individuals. All seating positions will have 60" seat belts with under seat retractors (no traveling retractors). All seat belts on the vehicle will have the same size male and female ends. The permanent front seats will be designated as priority seating.

There will be two seating positions provided with non-retractable lap belts for use with child safety seats. These will be located in the center of the vehicle on the aisle side of the seats. Include Three 12" extenders for seat belts. All seat belts on the vehicle will have the same size male and female ends.

Floor Plans TT and UU will have at least two seating positions that meet the FMVSS 225 latch system requirement for child safety seats. They will be located on fixed seats, and must be designated safety seat locations. The preferred location of these positions will be on the aisle side of two-passenger seats.

Floor Plan Descriptions

Floor Plan "TT" - This floor plan will have a front mounted, curb side wheelchair lift and will have no seats located at the wheelchair securement location. This floor plan will have capacity for 1 mobility aid and either 7 or 8 ambulatory passengers.

Floor Plan UU – This floor plan will transport 14-16 ambulatory passengers. There is no wheelchair lift.

If there is a conflict between the written specification and the floor plan diagram, the written narrative controls.

4. Windshield, Door Glass and Window Glass - Safety plate windshield and window glass all around.

The windshield shall be fixed glass and will be tinted.

Passenger side windows shall be provided throughout the passenger area. These windows will be a horizontal or split sash opening type that easily open and close. These windows shall meet all the latest federal regulations for retention and release. Kick-out type windows will be hinged at the top. All windows that are considered as emergency exits will be clearly marked. A full-length drip molding of at least 3/4" will be installed over each passenger window opening.

The driver position, on buses with right hand front entrance door only, shall have a window that can be opened for ventilation at the left side.

The dual right hand passenger entrance doors shall have full-length windows that will allow the driver to judge curb location.

The emergency rear door shall have an upper and lower fixed glass.

There will be glass on each side of the emergency door, approximately 24" x 24", 7" x 30", or 14" x 20".

The windshield, driver position side window, and rear emergency door glass will be tinted. The passenger entrance door glass will be tinted in the upper part and may be clear in the lower part.

All passenger area side window glass will be tinted. An approximate tinting of 28%-30% light transfer is acceptable.

All side windows will have inside latches for security.

All windows, doors, and windshield will be installed to keep water and dust leakage to an absolute minimum. Proper sealing during installation is essential.

5. Doors

One door RH or two doors LH and RH acceptable.

Entrance LH, - This door shall be the chassis manufacturer's standard front side door with tinted drop glass, armrest and lock. This door may be modified if necessary.

Entrance RH, - Main service door may be either forward folding, in-out or out-out opening type. This door shall provide no stoop entry headroom with a minimum of 72" entrance height from the top of the first entrance step to the door headliners. The minimum width shall be a 24". The top of the door entrance shall be fully enclosed and protected from weather and other elements. It shall have protective padding to prevent head injury when entering or exiting.

All vehicles will have an electrically operated door. The electric door will also be forward folding, in-out or out-out opening type. A switch from the driver's areas will operate this door. The door and control arms will be located above the door area, not beneath the stepwell. These doors will also have sweeps or flaps that cover the lower door edge.

Either door shall have a below floor level entrance stepwell, with a minimum of two steps. These steps shall be stationery, corrosion resistant steel, adequately braced and be an integral part of the basic structure. The height from ground to top of first step of empty vehicle be a maximum of 13-1/2" and a minimum of 10". Additional step heights will be a maximum of 11"; the head depth for all steps shall be a minimum of 8". All of the steps shall be level and the risers shall be vertical or slightly angled.

Each step will be covered with molded rubber or vinyl. The step covering will be non-skid type tread with white or yellow nosing. The riser shall be covered or coated with scuff resistant material.

These steps will be fully recessed, enclosed and protected from weather and other elements.

A stepwell light shall be provided and automatically operated by door control.

The entire door shall be weather stripped to provide a water and airtight seal. The door edge seals will be the over-lapping type to provide maximum sealing ability.

The door opening shall be structurally reinforced to have the same structural integrity as the body.

(If Required) RH side lift door or doors - This entranceway may have either single or dual swing-out type door or doors (single preferred). Catches or gas cylinders will be provided to keep doors open during lift operations. This door will have a window.

The door(s) height extended from the floor to the top and side-to-side of the entranceway shall provide adequate clearance for the ramp and wheelchair entry. (68" minimum).

This entranceway will be located forward in the right hand side of the body, across from the wheelchair securement area or in the rear of the bus, along the curbside. Please note lift position in floor plan TT. Lift door(s) will meet all requirements of ADA 49 CFR 38.25. Positive exterior latch(es) will be provided to keep lift door(s) open during lift operations.

The entranceway shall be protected from weather and other elements and be padded to prevent head and other injuries to passengers when exiting or entering.

Rear Emergency Door - This door shall be outward opening type, clearly marked as exits. The dimensions of this door will be approximately 32" wide and 50" high. This door shall have an open door warning buzzer only. Door will be properly sealed to minimize dust and moisture entry. Emergency door will be marked with a red light that meets FMCSR 49 CFR Part 393.92.

This door opening shall have protective padding to prevent head injury when exiting.

The rear emergency door must have an inside latch and release mechanism and outside handle. This door shall have factory installed position hold and check arm. All doors will meet ADA requirement 49 CFR 38.25.

Security Lock System - The bus shall have a security door lock system for all doors. Vehicles will have a warning device (buzzer that indicates a locked rear emergency door.) This device will meet FMVSS 217.

6. Wheelchair Lift

The lift shall be an electrohydraulic type providing power-up, power or gravity down and power automatic fold. The power source shall be the vehicle 12-volt electrical system. The lift will be mounted within the body with access through the right hand side load door or doors. Modifications for the lift installation must not affect the structural integrity of the basic vehicle. Lift and installation must meet all requirements of FMVSS 403 & 404 for public use lifts.

The lift shall have a minimum rated working load capacity of 800 lbs.

The lift will have no dirty or greasy surfaces that will contact the wheelchair occupant during normal operation.

The lift platform shall be constructed of expanded metal with a minimum usable width of 30" and a minimum depth of 51".

The lift shall have the following:

Nine interlocks as defined in FMVSS 403.

A manual override to lower, to raise the lift platform and an emergency platform release for use in the event of total power failure.

On lift operation, the lift platform shall have a device that locks in an upward position acting as a curb as the lift platform is departing ground level. This device also pivots downward upon ground contact acting as an entry ramp. There will also be a similar safety barrier on the inboard side of the lift platform (at least 6" in height).

Door activated power cutoff device to prevent movement of the lift when vehicle doors are closed.

Two handrails for use by the wheelchair occupant. These rails shall automatically fold up or down with platform movement and shall fold flat against the platform during transport.

An automatic down pressure cutoff device shall stop downward movement of the platform upon contact with any obstruction or the ground.

The lift shall have automatic controls to perform all functions. The control shall be hand held, cord mounted console control, with sufficient cord length to allow operator to control the lift from inside or outside. Lift circuit breakers or fuses will be located in vehicle battery box.

Any part of the lift assembly protruding into the body that could be hazardous must be properly padded for passenger protection. Manufacturer's flexible end barriers meet padding requirement.

The electrohydraulic lift system shall have a monitoring device requiring no tools to allow for a quick and easy fluid level check.

Both types of lift systems and mechanisms must be easily accessible for repair and maintenance without dismantling and removal from body.

The lift will be a Ricon S-5510, S-2010, Maxon WL-7, Braun Millennium or Century Series 2, or approved equal. Lifts other than those specified will be considered but they must be equal in type, quality and performance. Descriptive literature and detailed specifications must be included with your bid. All lifts will meet requirements of ADA 49 CFR 38.23.

The lift must provide either a safety belt occupant restraint system inter-locked to lift operation or an outside end barrier that locks in place before the lift platform leaves the ground more than 4". Both systems are to reduce the chances of a lift passenger falling or rolling off the lift platform during lift operation.

7. Retractable Wheelchair Securement System

Each wheelchair tie down securement area shall be equipped with a minimum of four (4) wheelchair restraint securement belts designed to meet all ADA structural requirements and 30-mph/20g impact.

The wheelchair securement tie down belts shall be retractable into a protected steel housing and eliminate the need for belt cleaning and storage (fully automatic). The belt housing and mechanical retractor shall be designed for a minimum of five (5) year life.

The location of the rear belts shall be positioned to allow the driver to secure the wheelchair frame between the rear wheelchair wheels. The retractable belts shall feature positive locking mechanisms. The belts shall be equipped with a release tab to release tension on the belts when unfastening the wheelchair and to take up the excess belt when securing the wheelchair.

The retractable belts shall feature positive locking mechanisms. Once the front belts have been attached to the wheelchair frame, a hand tensioned knob attached to the belt housing shall be applied to bring the wheelchair passenger and chair into a state of securement. The front belts shall be designed for a minimum life of five (5) years. Front belts may also utilize a flush floor mount L-Track with flanged edges for securement to the floor. These L-Tracks will run the entire length of the securement area (60" minimum).

The wheel chair occupant restraints shall be FMVSS Type II (combination lap and shoulder belt) with an adjustable height shoulder belt featuring a single-point release buckle for quick release. This system will also be fully retractable. Include one 20" lap belt extension for each wheelchair passenger.

There will be a 24" L-Track located for the shoulder harness position.

The retractable wheelchair securement belts will utilize a S-hook design to allow attachment to the mobility aid.

Include one set of the following: Sure Lok AL700842, FF200637-020-05, and if FE200732If Q'Straint is bid, include one 6325AT (or approved equal) occupant restraint accessories.

All equipment shall comply with all applicable federal standards.

The restraint system shall be so designed, configured and installed as to accommodate the greatest possible variety of wheelchair designs and sizes.

There will be (four) 4 - 16" quick straps for each securement location.

Use of the restraint system under normal conditions shall not cause damage to any part of the wheelchair.

The (2) aft and the (2) forward restrains shall be securely anchored to the vehicle seating components or to anchor floor points and all belts shall be retracted back into their cases for storage for storage, organization, and cleanliness when not in use. All belts and belt anchor points shall be strong enough (48" distance) to comply with FMVSS 210 and FMVSS 222.

Anchor points will provide a minimum of 48" spacing.

All belts shall feature positive locking mechanisms to ensure passenger security.

Two wheelchair tiedown belts shall have automatic tensioners.

Only the webbing of the wheelchair tiedown belts shall be in contact with wheelchair restraint components.

Q'Straint QRT Max or Sure Lok Titan systems or approved equal.

There will be pouches mounted on the wall of the bus to store all the tie-downs and belts.

Easy to secure and release torso pads which encompass both the wheelchair and occupant shall be included for each wheelchair position. All securement devices and lift area designs will meet ADA requirement 49 CFR 38.23.

8. Air Conditioning, Heating, Defrosting and Cooling - Front and Rear

Heating and Defrosting - The high output heating system shall consist of front units to provide heat in the driver's, the entranceway and surrounding area. Under seat units shall provide for passenger comfort in the rear compartment. They shall be floor mounted and provide a minimum of 30,000 BTU's. Rear unit will be floor or wall mounted and located behind the rear wheel wells or as far back as possible. Rear heater is to have two-speed fan switch (off, low, high). Auxiliary heaters mounted in front of passenger compartment are not acceptable.

An integral defrosting and defogging system shall keep the windshield and all windows free of frost and condensation.

The system shall be supplied with hot water from the vehicle engine. Shut-off valves (single or dual) shall be provided and easily accessible under the vehicle hood or body, provided they are clearly marked.

A description of the system and the BTU output will be included with all bids.

All controls shall be installed in a panel easily accessible to the driver.

Cooling - The system shall be powered by the vehicle engine and have a rated total output capacity of approximately 65,000 BTU's. All system components (body and chassis) will be compatible with R-134A Refrigerant. All bolts used in mounting and securement of the compressors (two compressors required) will be a grade 5 or higher. Hoses, fittings and clamps will be constructed to meet or exceed SAE specification J2064-Type D. The construction of the clamps will be of stainless steel and will be of a quick click or flex click design (or approved equal) to ensure coupling integrity. All aftermarket air-conditioning lines will nylon lined

Free blow cool air distribution shall be mounted overhead of the passenger seats. Adjustable air outlets to control and direct the flow of cooled air shall be installed for the comfort of passengers. The rear-cooling unit shall have a capacity of at least 53,000 BTU's. This rear-cooling unit will have a 3-speed fan control switch (off, low, medium, and high). Unit will be roof mounted and located of the very rear of the passenger compartment. Air circulation ducts will also be provided to give passengers in very rear of bus full comfort.

Chassis manufacturer's optional front air conditioning will be included. Approximately 12,000 BTU's.

This system will provide cooling in the front of the bus and have adjustable outlets for the driver to control and direct the flow of air.

The skirt mounted condenser will be protected from debris thrown from tires by rustproof shields, one mounted on the front and one mounted on the rear of the condenser.

All controls for fan speed and temperature shall be installed in a panel easily accessible to the driver.

For increased circulation in the driver area, a two-speed fan with a minimum diameter of 6" shall be mounted in the driver's area. The three-position control switch will be located on the dash panel (off, low, high).

Roof Ventilator/Emergency Exit - A dual purpose manually operated roof ventilator/emergency exit shall be installed in the roof of the vehicle at approximately the center of the passenger compartment. The hatch shall be 23" x 23" minimum and shall be installed so that when it is open and the vehicle is in a forward motion fresh air will be provided inside the vehicle. The hatch shall be a Transpec, Inc. Model 1000 regular profile, Dual Purpose Safety Vent, Transpec Model 1075 Low profile, or an approved equal. Econo Hatch is not acceptable.

Heating and Cooling Certification - The supplier must certify that the heating and cooling system he proposes to use will be adequate for passenger and driver comfort based on interior dimensions and anticipated passenger load. This heating and cooling system will provide driver and passenger comfort for any climatic condition encountered in Missouri when operating in either rural or urban service.

Ignition Cutoff - An automatic ignition body circuit cutoff for heaters, defroster, and air conditioning shall be provided.

9. Chassis and Body - Requirements and Performance

The chassis, fully loaded and equipped body, must provide proper weight distribution. The front and rear weights must not exceed the chassis manufacturer' gross axle weight rating.

Front Section, Exterior - Shall have manufacturer's standard grill, grill frame, lamp moldings, etc.

Front Section, Interior - Shall have all items regularly furnished as standard by the manufacturer.

Lights and Signals

Exterior - High and low beam headlights, parking, tail, stop, backup, front and side marker lights or reflectors, license plate, hazard warning flashers and directional signals. There will also be a reverse or back-up alarm.

Interior - Instrument panel, front and rear overhead lights, and all doors. Overhead lighting activated by a dash mounted switch, shall provide lighting intensity at a reading level. All door lights and RH front door stepwell shall illuminate automatically when doors are open. All vehicles shall have Priority seating signs as required by ADA requirement 49 CFR 38.27 and rear emergency door lighting/signage as required by FMCSR 393.92.

All interior lights shall be adequately recessed so as to not be a hazard to occupants. Interior light fixtures shall be operable with or without engine running. All interior and exterior lighting will meet ADA requirement 49 CFR 38.31.

All interior wiring shall be insulated and covered.

Instrument Panel and Instruments - Standard panel with gauge instrumentation for fuel, engine temperature, oil pressure, alternator, speedometer and odometer. All switches installed by body manufacturer will be a heavy-duty type. (push, pull or rocker)

Horns - Dual electric.

Mirrors, Rearview - Interior, adequate size to provide the driver a full view of the passenger area (approximate 6" x 12", 8" convex is acceptable).

Mirrors, Rearview Exterior (RH & LH) –Heated, power adjustable type, one piece with convex, approximate size 7" x 10". The mirrors must be mounted so as not to obstruct the driver's front or side vision. Mirrors of 5" in width will also be installed (RH and LH). Also include an 8" convex mirror mounted on the left-rear corner of vehicle to allow for a view directly behind bus. All mirrors will be assembled with grade 5 bolts. OEM mounting hardware is acceptable.

Windshield Wiper and Washer - Electric, two-speed with intermittent wipe and mist option.

Tilt Steering Wheel and Cruise Control - Include in your bid price.

Sun Visor - For driver.

Storage Compartment – For personal items and/or valuables, a key-lockable storage compartment will be located immediately above the driver.

Radio - AM-FM push-button

Engine - Gasoline V-8 or V-10, minimum of 255 hp, providing necessary horsepower and torque at governed R.P.M. for road speed and grade ability. The engine shall have a full flow replaceable or spin on type oil filter. The air filter shall be a dry type. The engine shall be equipped with an oil cooler. Ford Chassis to include Super Duty service package. Ford Chassis to have V-10 only.

Exhaust System –Exhaust will be discharged out driver's side.

Fast Idle - Vehicle will also be equipped with a Pentax or InterMotive AFIS automatic Fast idle control solenoid, (or approved equal). Ford Factory fast idle is acceptable. The fast idle will not activate when parking brake is set. Fast idle will operate under low voltage conditions with or without the parking brake set.

Cooling System - Heavy duty or maximum cooling radiator with overflow recovery reservoir and permanent type anti-freeze installed to protect the vehicle to at least 20 degrees below zero.

Transmission - Automatic, 5 or 6-speed with an electronic shift control, auxiliary exterior oil cooler and overdrive.

Alternator(s) - Minimum of 220 Amps. All mounting bolts will be grade 5 or higher. (May require dual alternators)

Batteries (2) - HD with adequate CCA and reserve capacity (Minimum 625 CCA) each for operating chassis and wheelchair lift components. One battery will be mounted so access can be gained through a door on the passenger side of the bus. Battery will be mounted on a slide-out tray to allow access. This tray will be sealed to prevent dirt and water from entering but also vented well enough to allow gases to escape.

Steering - Power.

Brakes - HD power, four-wheel front and rear disc system.

Axle, Front - Minimum of 4,300 lbs. capacity.

Axle, Rear - Minimum of 6,300 lbs. capacity, ratio 4.10/1 or 4.56/1.

Drive Shaft Guard(s) - Minimum requirement –one for each section (FMCSR 393.89)

Springs, Front - Heavy-duty coil or leaf with a front stabilizer bar.

Springs, Rear - Heavy duty, leaf type, with stabilizer bar.

Shock Absorbers- Heavy duty, front and rear.

Fuel Tank or Tanks - Minimum capacity 33 gallons with outside fill spout.

Tires and Wheels - The tires and wheels will conform to the tire and rim association standards. They will be factory installed by the truck manufacturing company. Acceptable tire makes will be those listed as being available in the tire section of manufacturer's Truck Data Book on specification date.

Wheels - seven (7) disc with size and capacity to match load-carrying requirements of tire to vehicle.

Mud Flaps - For both front and rear wheels.

Tires - Tires will be a major brand (preferably not Firestone), factory installed, metric sized, and meeting manufacturer's specifications. Seven (front, dual rear and spare), approximate size LT 225/75R 16E, 10 PR, blackwall tubeless or tube type highway tread. Spare tire and wheel will be furnished. Spare tire is to be shipped loose. All tires including spare to meet or exceed GVW requirements, and be of radial design. All tires will be mounted to make air pressure checks easy. Tire valve stem extensions will be installed so operators can check tire pressure of BOTH rear dual tires with gauge while kneeling by the rear tires. Include a jack and tire changing tools to meet vehicle GVW. Tire changing tools must be securely mounted anywhere in the vehicle interior, as long as it does not impede operations or safety.

Running Board – Vehicle to be equipped with one aluminum running board 11" wide and 36" long mounted at OEM door location. It will be 1/8" thick diamond embossed or other anti slip design on the footing area. This running board will be securely mounted with at least 3 braces that will be made of galvanized steel to resist rust. A non-skid expanded metal will be installed in the entire surface to prevent slipping. Diamond embossed only is not acceptable.

Bumpers - Front and rear. The rear bumper ends will be positioned close to the body to minimize catching fixed objects as the bus moves forward in turns.

Undercoating - The entire body understructure shall be covered with a heavy, long lasting undercoating material. Automotive quality undercoating will not be acceptable. Undercoating and will not interfere with OEM requirements.

Safety Equipment - New unit to have all the latest standard safety equipment required by laws and regulations.

Emergency Equipment - A fire extinguisher certified for this type vehicle (minimum 5 lb. 10-BC type) and a 16 unit first aid kit with contents recommended for this type and capacity vehicle shall be provided and shipped loose. Three reflective bi-directional triangles with 3 LED warning lights (Tri Alert or approved equal) shall also be provided. These emergency items shall be securely mounted in the driver area and easily accessible. Also include an assortment of spare fuses used in chassis and body components along with an emergency seat belt cutter.

Each vehicle will have a blood borne disease kit including the following items:

A. Latex gloves
B. CPR mask
C. Goggles
D. Apron
E. Disinfectant wipes
F. Absorbent and scoop
G. I.D. tag and red plastic bag

All first-aid and blood-borne disease kits will be packaged in a durable hard plastic or metal case.

10. Include as an option with all floor plans. Safety Vision SV 5000, Backing Vision BV 1350 (or approved equal) backing vision system.

11. The following must be furnished and included with your bid:

A. All bidders shall describe and furnish a complete detailed listing of the vehicle, literature, requested drawings and modifications of the equipment to be furnished.

B. A detailed drawing, showing interior floor plan, dimensions and seating arrangements shall be included.

C. A guarantee that the chassis manufacturer's warranty will be in effect at the time of delivery and acceptance (36 months or 36,000 miles minimum).

D. A copy of the warranty on the body, chassis, air conditioning, wheelchair lift and alternator. Warranty items on these components to be a minimum of 2 years or 24,000 miles.

E. Priority seating signs that meet ADA requirement 49 CFR 38.27.

F. FMVSS Certification. (Including FMVSS 210 for seats)

G. Descriptive literature and detailed specifications for lift system.

H. Description of air-conditioning, heating and defrosting systems.

I. Certification of adequacy of heating and cooling systems.

J. Most recent complete Altoona Bus Test Report

K. Buy America Pre -Award information including ALL of the following-

1. An itemized list of domestic parts or components used in the manufacturing of the vehicle.
2. An estimated cost for each item listed.
3. The estimated total per cent of domestic parts
4. Final assembly processes and activities taking place at the identified final assembly location.

12. **To be furnished with each vehicle at time of delivery:**

An operator's manual for the basic chassis, body, and other systems.

A parts book and maintenance manual for add on equipment used in modification.

A schematic of any installed wiring shall be furnished with each vehicle delivered

Documentation of front end alignment or alignment check.

MSO and title application will be provided at delivery. MoDOT will be Lienholder and end user agency will be the owner.

A documented leak-free water test preformed prior to delivery